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Fort Mackinac, Historic Landmark on an Old Frontier, is both tourist attraction and convenient overlook from which to view the scenery of Michigan's island resort. Built by the British, the fort was taken by Americans in 1796, years after the Revolution.

(SEE BULLETIN NO. 2)

MAYNARD OWEN WILLIAMS

UMI

the Indian Ocean to Lake Victoria, main source of the River Nile. In this country live 80 African tribes, each with its own language. The Kikuyu tribe, backbone of the Mau Mau terror, is one of them. Not all this tribe is involved, and the Mau Maus do not hesitate to slaughter kinsmen who oppose them. Throughout Kenya, most natives remain loyal.

The depredations of the Mau Maus have given Kenya, in the 20th century, an atmosphere similar to that prevailing in the early frontier days of the United States when hostile Indians attacked without warning. Settlers' wives are seen with a babe in one arm and a rifle cradled in the other elbow. Men pack six-shooters to work—and to social events. Plantations and settlements have machine guns. Tribesmen keep weapons handy.

Sometimes Wipe out Entire Villages—Despite all these precautions, backed by the vigilance of police and British troops, the Mau Maus continue to take a heavy toll of life and property, sometimes wiping out entire native villages. Usually they strike at night, then hide in forest or hills.

Kenya has a population of about 5,500,000. The largest non-native group is 100,000 Indians, who also have felt the Mau Maus' ferocity. Europeans number about 30,000, and there are some 25,000 Arabs.

Most of the country's development has been in the south because the northern part, representing 60 per cent of Kenya's area, is largely arid. On the southern coastal plain the chief port, Mombasa, is located. Inland lie hot, palm-covered lowlands, giving way to a temperate plateau.

When the first British colonists reached the plateau early in this century, they found that many European crops grew well, although the Equator runs through it. Its height ranges from 3,000 to 10,000 feet. Nairobi, the capital, and most of the other cities are on the plateau.

Farming is the chief occupation. Leading products include coffee, tea, cotton, sugar, and a variety of nuts. Unusual crops are sisal, a fiber used for ropemaking; and the daisylike pyrethrum flower, source of insecticide. The dairy, wool, and ranching industries also are important. A dry lake in the steamy depths of the Great Rift Valley produces soda.

Besides being the capital and a center for a rich agricultural area, Nairobi is renowned as headquarters for big game hunters. Wild animals abound on plains and mountains. Targets for gun or camera include elephant (illustration, above), rhinoceros, lion, giraffe, ostrich, antelope, gazelle, leopard, and numerous other beasts. Bird life also is varied.

The deadly earnest hunting that now goes on in Kenya is of a far grimmer nature, however. Crack British units are operating side by side with loyal native troops in an effort to wipe out the Mau Mau terror. Meanwhile, the wise colonist still makes a habit of "keeping his powder dry"—even when it means parking his revolver in a soap dish beside him when he takes a bath.

References—Kenya is shown on the National Geographic Society's map of Africa. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also, "Africa's Uncaged Elephants" (14 photographs), in *The National Geographic Magazine* for March, 1951; and "Britain Tackles the East African Bush," March, 1950. *(Back issues of the Magazine may be obtained by schools and libraries from the Society's headquarters at a special discounted price of 50¢ a copy, 1946 to date; 90¢, 1930-1945; $1.90, 1913-1929. Earlier issues at varied prices.)*

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QUENTIN KEYNES

Through Kenya's Unfenced Zoo Roams a Wild Elephant—Hidden in a tree, the photographer made this remarkable shot of a wrinkled old cow with frayed ears. Behind her, ponderous and solemn, came 70 other tuskers, browsing as freely as deer in many of America's woodlands. The African elephant has larger ears than his Indian cousin, and grows a foot taller.

Bulletin No. 1, April 20, 1953

Kenya Fights Tribal Terrorists

TERROR stalks these days through Kenya, the scenic and fruitful British possession on the east coast of Africa. It preys alike on the peaceful settlements of natives and plantations of white colonists.

The terrorists are the Mau Maus, fanatical members of a native secret society pledged to expel all Europeans. Their avowed grievance is that a rich farming section in the interior was stolen from them. Actually the tribe from which most Mau Maus come owned only a small portion of the "White Highlands," as this area is called. It was sparsely peopled when the British came. The native occupants, with few exceptions, were paid for their holdings.

Twice the size of Arizona, Kenya (pronounced keen-ya) stretches from

inac Island (illustration, cover) before he journeyed southward and discovered the Mississippi River.

The peninsula has a particular appeal for young people because this is the land of Hiawatha "by the shining Big Sea Water," Lake Superior. Admirers of Longfellow's poem find much of interest in Tahquamenon Falls State Park. Beside the river flowing through it Hiawatha built his birchbark canoe. The Upper Falls of the Tahquamenon, sometimes called Michigan's Niagara, drop 200 feet. At the Lower Falls the river plunges another 43 feet in three steps. Decaying vegetation gives the water a brownish tint, hence it is often called the "golden" or "dark" river.

References—Mackinac may be located on the Society's map of the Northeastern United States.

For further information, see "Work Hard, Play Hard Michigan," in *The National Geographic Magazine* for March, 1952; "Michigan Fights," December, 1944; "Around Our Inland Seas," April, 1934; and "Michigan, Mistress of the Lakes," March, 1928.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, February 13, 1950, "Uranium Prospectors Invade Upper Michigan."

Marquette Park's Peaceful Green Lawns, sloping down to the water, show no traces of Mackinac Island's early history as a frontier outpost and fur trading center. In the teens and twenties of the 19th century, trappers, traders, and adventurers from overseas mingled with local Indians in a boisterous preview of the mid-century's "wild West" as the frontier pushed toward the Pacific coast. Today steamers from up and down the lakes bring summer visitors to enjoy Mackinac's peaceful sylvan beauty.

MAYNARD OWEN WILLIAMS

Bulletin No. 2, April 20, 1953

Bridge to Connect Michigan's Peninsulas

AFTER a half century of debate, Michigan's "missing link" is finally on order. Work will start this spring on a bridge across the Straits of Mackinac to connect the northern and southern peninsulas that make up the state.

The four-lane highway span will stretch from Mackinaw City on the south shore to St. Ignace. People now use ferryboats in ice-free months. The crossing normally requires almost an hour. By bridge the trip will take ten minutes.

Most People in Lower Peninsula—Michigan has more than 6,000,000 people today, most of them living in the Lower Peninsula. There are located the best farming areas and the great manufacturing cities of Detroit, Grand Rapids, Pontiac, Flint, and Lansing, the capital. Only a few hundred thousand populate the Upper Peninsula, but it is important for its forest products, copper, and iron ore.

On the great seal of the state, dated 1835, there is a Latin inscription saying: "If you seek a pleasant peninsula, look about you." When Michigan asked for admission to the Union the year the seal was made, the state comprised only the Lower Peninsula plus a sliver of what is now Ohio.

That sliver delayed official statehood for two years because Ohio claimed it. Michigan finally let Ohio have the disputed 470 square miles, which included the site of Toledo. By way of compensation for this loss, Congress granted Michigan the then little-known Upper Peninsula, an expanse of more than 16,000 square miles.

Bridge to Be World's Longest—The Mackinac Bridge will be 8,614 feet in length. This will make the world's longest suspension bridge, measured between the points where the cables are anchored on opposite shores. However, the customary way of ranking such spans is by the distance between the towers from which the cables are suspended. Thus, San Francisco's Golden Gate Bridge will retain first place because the distance between its towers is 4,200 feet, or 400 feet longer than Mackinac. New York's George Washington Bridge will drop to third place.

People living in the Upper Peninsula are hoping the bridge will link them more closely to the main portion of their state. They point to Maryland, which was similarly divided by Chesapeake Bay into two unequal sections until the Bay Bridge connection was built.

From the national viewpoint, the Mackinac Bridge promises to be an important defense asset, providing the only fast-transit link from southern Michigan to the Soo Canal. Through this artery, called the most important water route in the world, passes much of the iron ore that feeds the country's steel industry. It connects lakes Superior and Huron and has been heavily guarded against sabotage since the Korean war started in 1950.

For vacationists, the new span will bring a scenic and historic region within easy reach. The first French explorers from Quebec settled there. Marquette labored among the Indians of the peninsula and near-by Mack-

A British Crown Colony—Bermuda is a British Crown Colony with representative government. The civilian population numbers less than 38,000, or about the last census total for Cumberland, Maryland. Hamilton, capital and chief port, is the biggest town, with approximately 3,000 people. No adequate natural water supply exists; when rainfall is insufficient, the islanders import fresh water from North America.

A popular resort in prewar days, the islands have more than regained their position as a favorite vacation spot since World War II. Last year the colony played host to an estimated 100,000 visitors, mostly from the United States. These guests spent somewhere between 28 and 30 million dollars, a sum vital to Bermuda's financial welfare. Revenue from exports is relatively small, and is derived from bananas, potatoes, onions, and lily bulbs.

There are 360 islands in the Bermuda group, but only about 20 are inhabited. They enjoy a mild, pleasant climate. Coral rock underlies them (illustration, back cover). Beaches are pinkish coral sand and the sea fascinates visitors with its shifting hues, as if marbled with all tones of blue, green, and gray. Exotic fish abound in the waters.

Colonized by Accident—A Spaniard, Juan de Bermudez, discovered the islands some time prior to 1515, and for him they are named. The first British settlers arrived there in 1609 by accident; they were shipwrecked en route to Virginia and founded St. George's, still a delightful town. The Virginia Company, then in charge of developing the mainland Virginia area, claimed all the islands for some years but sold them later to the Bermuda Company.

When the American Revolution broke out, many islanders sided with the colonists. They showed it by looting Bermuda's powder magazine to supply George Washington with badly needed ammunition in the critical days after the Battle of Bunker Hill. According to one story, only the arrival of British reinforcements for the garrison later prevented the islands' falling to a task force of Continental men-of-war sent to capture them in 1779.

During the Civil War, Bermuda was a rendezvous for blockade runners who slipped through the cordon of Union warships to bring supplies to the Confederacy.

The "Bermoothes" figure in one of Shakespeare's plays, *The Tempest*, written about 1611. Two centuries later, Thomas Moore, the poet, wrote his "Endearing Young Charms" song while serving in the islands for the British Admiralty. Tradition is that he first sang it to the young belle of his inspiration as they tarried after services in a church at St. George's.

Bermudans have a reputation for being canny businessmen. For example, when they "passed the ammunition" to Washington's army in 1775, a letter to patriot leaders at Philadelphia followed. It is said the letter included—purely by "coincidence"—a bill for the gunpowder. As far as this future United States was concerned, the deal certainly was worth it.

References—Bermuda appears on the Society's maps of the Atlantic Ocean, and North America.

For additional information, see "Americans in the Caribbean," in *The National Geographic Magazine* for June, 1942; and "Happy Landing in Bermuda," February, 1939.

UMI

RUTHERFORD FROM GALLOWAY

A "Surrey with the Fringe on Top" joins the procession along Hamilton's waterfront where, in the shadow of a modern liner, an American schooner unloads lumber. Although motor vehicles have been allowed on Bermuda since World War II, carriages and bicycles still wheel along the streets and lanes of the island villages.

Bulletin No. 3, April 20, 1953

Bermuda, Playground and Sentry for the U. S.

TELL some people that Bermuda was once part of Virginia and they'll think you are wrong. You would probably get a similar reaction if you said it had the oldest Anglo-Saxon settlement surviving in the New World. Or that it, not Ireland, provided the inspiration for the ballad, "Believe Me, If All Those Endearing Young Charms." Each statement, however, is true.

The little island group lies in the Atlantic only 580 miles east of the North Carolina coast. Its legends and history date from pirate times, yet today it serves as an outpost for the defense of the United States. Lilies, symbols of serenity, bloom in profusion on hillsides surrounding military installations. The United States has had air and naval bases in Bermuda since early 1941 under a 99-year agreement with Great Britain.

COURTESY M.I.T.

A Mourning Dove Takes to the Air with a sweeping down stroke to gain altitude. Overlapping feathers keep the air from passing through its wings on the down stroke; a slight rotation lets air through and reduces resistance on the up stroke.

birds are usually called doves. There are many varieties, often differing only slightly in such characteristics as color or pattern of plumage, or nesting habits.

Doves feed primarily on wild grass seeds, and on grain when it is available. When they visit feeding platforms, they often shatter their reputation as birds of peace by driving off smaller birds until they, themselves, have eaten their fill.

In America, the turtledove and the mourning dove are often regarded as one and the same. The turtledove is traditionally an affectionate creature who "bills and coos" of love. The Bible emphasizes its association with spring in the lines from the *Song of Solomon:* "The time of singing birds is come, and the voice of the turtle [dove] is heard in our land."

In Christian lands the dove is considered to be the symbol of love and gentleness. As an emblem of the Holy Ghost, it is carved on church furnishings and tombs. It is also revered by Moslems as Mohammed's oracle. It had a place in the ancient pagan ceremonies of Europe, and was sacred to the Israelites.

References—See also, "Bag of Birds" (24 color photographs), in *The National Geographic Magazine*, June, 1944; and "Game Birds of Prairie, Forest, and Tundra," October, 1936.

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Bulletin No. 4, April 20, 1953

Government Moves to Save Mourning Doves

IN order that the mourning dove will not follow its cousin, the passenger pigeon, into extinction, the government is now strictly enforcing game laws that apply to this familiar descendant of Noah's bird scout. It is also making an intensive study of the diseases which attack the dove, and of its way of life.

Indiscriminate hunting of the passenger pigeon, which once darkened the skies of the United States in flocks of more than a billion, is blamed for the disappearance of the bird. The young pigeons, just able to fly, were particularly desirable as toothsome squabs and tons of them were shipped to New York markets to be sold to hotels and restaurants. Deforestation also contributed to the passengers' vanishing.

Future of Dove Seems Assured—Chances of saving the mourning dove and increasing its numbers are believed to be good, as most states classify it as a songbird. Only in the south and southeast, where a steady decline in the dove population has been noted, and in a few scattered western and northern states, can the birds be hunted as game. In addition, the season is brief and the number of birds that may legally be killed is limited.

Conservation laws define the seasons when doves may be shot, and restrict shooting except between noon and sundown. This saves the birds on their morning forage flights. To date, no effective remedy has been found for decreases due to disease and change in land use.

Game wardens also are enforcing laws against baiting. In this illegal practice, fields are strewn with grain and the birds are slaughtered when they appear for food. In some areas hunting parties of a score or more would conceal themselves in blinds around the baited field.

The mourning dove is so called from its somber plumage, and its plaintive note which has been variously described as suggesting "hopeless mourning," or "the tenderest love and devotion," depending on the mood of the listener. Its feathers are usually a greenish brown above and a reddish or grayish brown beneath. The bird can also be identified by the whistling sound which its wings make as it flies.

Large as Songster, Small as Game—The dove is rather small as game, but larger than most songbirds. Generally more than 12 inches long, its full body and small head are characteristic of all doves and pigeons. It has a long, tapering bill that has been known to freeze fast to the ground during ice storms.

Another marked characteristic of the mourning dove is the nest. This is an astonishingly poor makeshift, a handful of twigs so loosely thrown together that the eggs are always in danger of rolling out. Sometimes the doves overcome this hazard by appropriating the abandoned nests of birds more skilled in homebuilding.

Doves raise broods three or four times a year. Usually two eggs are laid. Although a few doves are found in the northern states during the winter, most of them migrate. A few fly as far south as Panama.

The terms "dove" and "pigeon" are almost synonymous, but the smaller

Canada, Great Britain, and the United States have signed an agreement with Australia by which that commonwealth's uranium will be available to them for atomic energy purposes. The agreement provides for financial and technical assistance to Australia for the development of the deposits and sale of the ore to the United States and British governments at prices agreed upon.

References—Northern Territory may be located on the Society's map of Australia.

For additional information, see "From Spear to Hoe on Groote Eylandt," in *The National Geographic Magazine* for January, 1953; "Exploring Stone Age Arnhem Land," December, 1949; and "Cruise to Stone Age Arnhem Land," September, 1949.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, March 2, 1953, "Australian Sapphire Supply Rivals Ceylon's."

Taking to Clothes Since the Coming of the White Man, this aborigine of Arnhem Land, in Australia's Northern Territory, uses a flour sack as a costume. Wading in an irrigation ditch, he is planting cassava cuttings in neat furrows. Long nomadic, Arnhem Land folk have only recently adopted such settled habits as planting. Once they ate only fish, crabs, oysters, and such edible plants as nature provided. Now their menus include vegetables and nutritious cassava starch.

HOWELL WALKER

Bulletin No. 5, April 20, 1953

Uranium Brings Boom to Northern Australia

AUSTRALIA is fast becoming a rival of Canada, South Africa, and the Belgian Congo in the production of uranium. New discoveries of radioactive ores bid fair to transform the "down under" continent's sparsely settled Northern Territory into a modern state.

Uranium deposits have been known in Australia since 1910. Until 1934, they were mined at various times for radium. Peddlers in the mine vicinity sold bottled mine water as a remedy for rheumatism.

War Revived Mining Operations—Profits dwindled, and the mines lay deserted and inactive until 1944. In that year, driven by war necessity, technicians were rushed to the pits. In the frenzied effort, classed "top secret," they produced many tons of raw material for the atom bombs which ended World War II. As there was no time to build roads and railways, the ore was brought from the "backout" districts on camels.

In 1949, a prospector named Jack White made a strike 1,000 miles north of previously known deposits. This touched off the hectic uranium rush now exciting northern Australia. The scene of White's discovery was the Rum Jungle, a tangle of bamboo, palm, and mango trees south of the little tropical port of Darwin on the Timor Sea.

From an abandoned copper mine, White took samples which brought prospectors swarming into the region. Cattlemen, sheepherders, pearl divers, and buffalo hunters dropped everything to share in what turned out to be one of the richest uranium booms of the non-communist world.

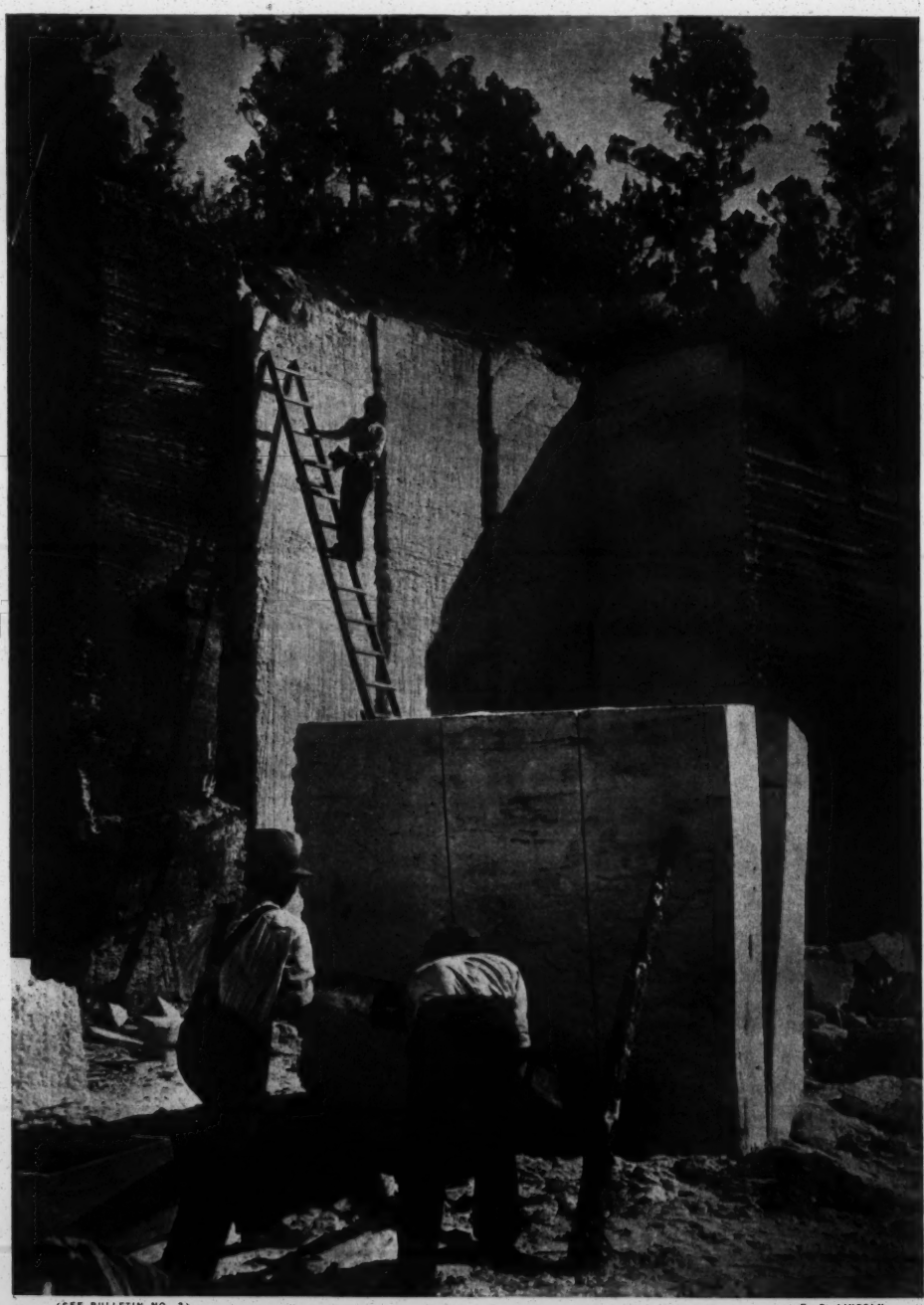
Offers of cash rewards for new finds have resulted in such great activity that radioactive treasure has been located in dozens of places. The Australian government has declared all uranium locations to be security areas. No unauthorized person may photograph, sketch, or take notes on—or even enter—these restricted regions. Harsh penalties are imposed for breaking these rules.

Territory Sparsely Populated—Until the great uranium strikes, fewer than 30,000 people lived in the Northern Territory. Many of them were semicivilized aborigines (illustration, below) who were only a short time removed from a Stone Age way of living. They still spear fish, hunt game with throwing sticks, and raise grain and vegetables by the most primitive farming methods.

Cattle and sheep were formerly the only wealth of this territory bigger than the areas of France and Spain combined, and largely desert. When artesian wells in the wide and arid rangelands went dry, stock died by the thousands.

New roads, railways, towns, and cities are planned to service the uranium mines. Many will come, not to dig the uranium ore, but to tap the deposits of gold, wolfram, mica, and other rare minerals which also await development in the region.

A large part of the continent of Australia is made up of pre-Cambrian and Cambrian rock which is the oldest known type and the variety in which radioactive ores are likely to occur.



(SEE BULLETIN NO. 3) F. S. LINCOLN

Sliced from the Quarry Wall Like a Piece of Cheese, slabs of coral limestone harden after being exposed to the air. This is the material from which many of Bermuda's picturesque and gleaming houses are built.